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Administration

# Strategies for Implementing a Standee-on-Lift Program for Fixed-Route Bus Service



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13. ABSTRACT (Maximum 200 words)  The Americans with Disabilities Act (ADA) refers to individuals who use canes or walkers, or who have trouble climbing steps, as standees. The Department of Transportation regulations implementing the ADA require that transit properties allow standees-on-lifts. The strategies contained in this document are designed to help transit properties establish and improve their fixed-route bus service to standees.  Four major areas of transit administration are addressed in this report: the role of management in establishing policy for standees; the role of operations in implementing a program for standees-on-lifts; the various training programs and personnel policies that can enhance service to standees; and various outreach programs that can increase standee ridership and enhance standee-system relations. The ADA requirements for wheelchair lifts and their use by standees are summarized in the Appendix.  This report was developed from input received from six transit systems - Seattle Metro, Portland Tri-Met, Washington Metro (WMATA), New York City Transit Authority (NYCTA), San Francisco MUNI, and NJ TRANSIT. It presents these systems' common elements for employing a standee-on-lift program and discusses how other systems might use their ideas.					
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## **PREFACE**

The Americans with Disabilities Act of 1990 was designed to ensure the rights of individuals with disabilities. The U.S. Department of Transportation published regulations in September 1991 to establish specific requirements of the legislation regarding transit. One of the requirements for fixed-route bus service, as well as for other transportation, is that wheelchair lifts accommodate passengers needing to use the lifts while standing.

Six transit properties, five fixed-route systems and one system with a feeder program, with successful programs for standees-on-lifts were interviewed for this report (Seattle Metro, Portland Tri-Met, Washington Metro (WMATA), New York City Transit Authority (NYCTA), San Francisco MUNI, and NJ TRANSIT). This report presents the common elements of these systems' standee-on-lift programs and offers suggestions on how they might be employed by other transit systems. The ADA regulations pertaining to Lifts and their use by standees, 49 CFR parts 37 and 38, are contained in the Appendix.

This document will be useful to transit properties trying to accommodate standees on their lifts. The authors are grateful for the opportunity to assist fixed-route bus service, increase their accessibility to individuals with disabilities, and also to increase the opportunities for individuals with disabilities.

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# METRIC/ENGLISH CONVERSION FACTORS

## ENGLISH TO METRIC

### LENGTH (APPROXIMATE)

1 inch (in) = 2.5 centimeters (cm)  
 1 foot (ft) = 30 centimeters (cm)  
 1 yard (yd) = 0.9 meter (m)  
 1 mile (mi) = 1.6 kilometers (km)

### AREA (APPROXIMATE)

1 square inch (sq in, in<sup>2</sup>) = 6.5 square centimeters (cm<sup>2</sup>)  
 1 square foot (sq ft, ft<sup>2</sup>) = 0.09 square meter (m<sup>2</sup>)  
 1 square yard (sq yd, yd<sup>2</sup>) = 0.8 square meter (m<sup>2</sup>)  
 1 square mile (sq mi, mi<sup>2</sup>) = 2.6 square kilometers (km<sup>2</sup>)  
 1 acre = 0.4 hectares (he) = 4,000 square meters (m<sup>2</sup>)

### MASS - WEIGHT (APPROXIMATE)

1 ounce (oz) = 28 grams (gr)  
 1 pound (lb) = .45 kilogram (kg)  
 1 short ton = 2,000 pounds (lb) = 0.9 tonne (t)

### VOLUME (APPROXIMATE)

1 teaspoon (tsp) = 5 milliliters (ml)  
 1 tablespoon (tbsp) = 15 milliliters (ml)  
 1 fluid ounce (fl oz) = 30 milliliters (ml)  
 1 cup (c) = 0.24 liter (l)  
 1 pint (pt) = 0.47 liter (l)  
 1 quart (qt) = 0.96 liter (l)  
 1 gallon (gal) = 3.8 liters (l)  
 1 cubic foot (cu ft, ft<sup>3</sup>) = 0.03 cubic meter (m<sup>3</sup>)  
 1 cubic yard (cu yd, yd<sup>3</sup>) = 0.76 cubic meter (m<sup>3</sup>)

### TEMPERATURE (EXACT)

$$[(x-32)(5/9)]^{\circ}\text{F} = y^{\circ}\text{C}$$

## METRIC TO ENGLISH

### LENGTH (APPROXIMATE)

1 millimeter (mm) = 0.04 inch (in)  
 1 centimeter (cm) = 0.4 inch (in)  
 1 meter (m) = 3.3 feet (ft)  
 1 meter (m) = 1.1 yards (yd)  
 1 kilometer (km) = 0.6 mile (mi)

### AREA (APPROXIMATE)

1 square centimeter (cm<sup>2</sup>) = 0.16 square inch (sq in, in<sup>2</sup>)  
 1 square meter (m<sup>2</sup>) = 1.2 square yards (sq yd, yd<sup>2</sup>)  
 1 square kilometer (km<sup>2</sup>) = 0.4 square mile (sq mi, mi<sup>2</sup>)  
 1 hectare (he) = 10,000 square meters (m<sup>2</sup>) = 2.5 acres

### MASS - WEIGHT (APPROXIMATE)

1 gram (gr) = 0.036 ounce (oz)  
 1 kilogram (kg) = 2.2 pounds (lb)  
 1 tonne (t) = 1,000 kilograms (kg) = 1.1 short tons

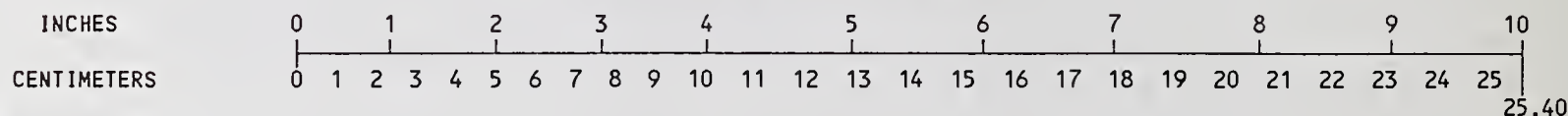
### VOLUME (APPROXIMATE)

1 milliliters (ml) = 0.03 fluid ounce (fl oz)  
 1 liter (l) = 2.1 pints (pt)  
 1 liter (l) = 1.06 quarts (qt)  
 1 liter (l) = 0.26 gallon (gal)  
 1 cubic meter (m<sup>3</sup>) = 36 cubic feet (cu ft, ft<sup>3</sup>)  
 1 cubic meter (m<sup>3</sup>) = 1.3 cubic yards (cu yd, yd<sup>3</sup>)

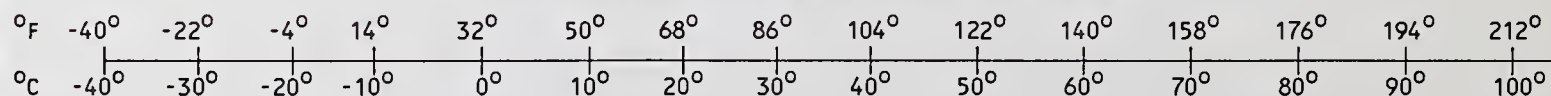
### TEMPERATURE (EXACT)

$$[(9/5) y + 32]^{\circ}\text{C} = x^{\circ}\text{F}$$

## QUICK INCH-CENTIMETER LENGTH CONVERSION



## QUICK FAHRENHEIT-CELSIUS TEMPERATURE CONVERSION



For more exact and or other conversion factors, see NBS Miscellaneous Publication 286, Units of Weights and Measures. Price \$2.50. SD Catalog No. C13 10286.



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# 1. INTRODUCTION

## 1.1 Purpose and Scope of Report

Signed into law on July 26, 1990, the Americans with Disabilities Act (ADA) guarantees that persons with disabilities will have access to employment, public accommodations, public services, telecommunications, and transportation. One of the requirements of the new ADA regulation is that fixed-route<sup>1</sup> bus service must accommodate passengers with disabilities needing to use the wheelchair lifts while standing. As stated in the ADA regulation:

(g) The entity shall permit individuals with disabilities who do not use wheelchairs, including standees, to use a vehicles lift or ramp to enter the vehicle. (49 CFR Section 37.165)

Standees are defined in Appendix D to Part 37 of the ADA regulation as:

People using canes or walkers and other standees with disabilities who do not use wheelchairs but have difficulty using steps (e.g., an elderly person who can walk on a plane without use of a mobility aid but cannot raise his or her legs sufficiently to climb bus steps) must also be permitted to use the lift, on request. (49 CFR Section 37.165)

Although a few transit systems have quite successful standee-on-lift programs, most have little or no experience with standees using lifts. To assist systems in safely establishing fixed-route bus service for standees, the Volpe National Transportation Systems Center was tasked by the Federal Transit Administration to review the accessibility programs of transit systems that provide such service. Five transit systems were identified with successful standee-on-lift programs for their fixed-route service, as well as one transit system that has an experimental "feeder" program. None of these systems can recall any serious problems with individuals with disabilities using the lifts while standing. This report presents the common elements of these standee-on-lift programs and discusses how they might be

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<sup>1</sup> A *Fixed Route System* means a system of transporting individuals (other than by aircraft), including the provision of designated public transportation service by public entities and the provision of transportation service by private entities, including, but not limited to, specified public transportation service, on which a vehicle is operated along a prescribed route according to a fixed schedule. (49 CFR Section 37.3, Subpart A)



employed by other transit systems. It presents the six systems' strategies for implementing such a program as well as the authors' own ideas for establishing lift service for standees.

## **1.2 Transit Systems Selected**

While researching transit industry experiences with standees, the authors identified the following systems with successful programs for standee-on-lifts: Seattle Metro, Washington Metro (WMATA), Portland Tri-Met, New York City Transit Authority (NYCTA), and San Francisco MUNI. Another system, NJ TRANSIT, recently implemented a highly successful feeder service. This feeder service transports passengers with disabilities from their homes to a bus stop or train depot where they may transfer to public transportation to reach their destination. All of these systems have had positive experiences with allowing standees on lifts:

- Seattle Metro has been allowing standees to use the vehicle lifts since the mid-1970s. Approximately 90 percent of their buses in fixed-route service are lift-equipped. In 1991, Seattle Metro made approximately 110 passenger trips per day where the lift was deployed for standees, for an annual total of 40,300 of these trips. Service to standees is 20 percent of Metro's total lift service.
- WMATA's standee-on-lift program was started in the late 1970s; fixed-route accessibility for individuals with disabilities is approaching 90 percent. WMATA counted 85,000 passenger trips that deployed the lifts for 1991. On roughly 10 percent of those trips one or more standees used the lift.
- At Portland Tri-Met, services to standees have been offered since 1987. Eighty-five percent of buses in fixed-route service are accessible to individuals with disabilities. The system recorded 43,875 passenger lift trips for 1991, and operators report that standee use of the lifts has been increasing steadily since the program's inception.

- NJ TRANSIT has introduced a feeder service that transports people with disabilities between their homes and accessible bus stops or commuter rail stations. NJ Transit estimates that 10 percent of the patrons using this service are standees.
- NYCTA has always allowed standees to board the lifts. The system estimates that it has 118,000 wheelchair and standee boardings per year.
- MUNI has 451 lift-equipped buses that are accessible to standees.

### **1.3 Common Elements of the Transit Systems**

There are five sections detailing the common elements of the transit systems that enable them to have successful standee-on-lift programs for individuals with disabilities.

Section 2 discusses the key issue of active management support in developing a successful standee program. Without active management support, programs for standees will not receive proper funding, staff, or equipment; the service to standees will not become a priority of the system.

Section 3 addresses transit operations' role in implementing a standee-on-lift program and suggests procedures for standee boarding and debarking, lift malfunctions and trouble-shooting, and enforcing standee-on-lift policies. It also discusses what is *not* required of operators serving standees.

The importance of establishing a single office responsible for a standee-on-lift program is examined in Section 4. This section summarizes the services and benefits that such an office provides at the transit systems under review.

Section 5 examines the various training programs and personnel policies that can enhance services to standees. The transit systems reviewed offer their suggestions for operator training, mechanic training, and employee evaluation and disciplinary action.

In Section 6, outreach programs are discussed that can increase standee ridership and enhance standee-system relations. Specific topics include encouraging standee ridership, standee training, and disability awareness.

ADA requirements for wheelchair lifts and their use by standees are summarized in the Appendix.



## **2. MANAGEMENT'S ROLE**

Transit officials maintain that the key to developing a successful standee program is active management support. Without top management support and without the resources to accomplish accessibility, service to standees will not become a priority of the transit system. Developing a policy, establishing an accessibility plan, and disseminating this plan are actions that management can take to ensure the success of an accessibility program.

### **2.1 Policies for Standees on Lifts**

A transit system can show its commitment to standees through its management policies. The transit system's policies toward standees on lifts can be posted on bulletin boards, in the vehicles, and at transit system facilities. The operator's manual and the operator training programs are ideal places for management to state its policies for standees-on-lifts. Seattle Metro has substantially improved accessibility for standees by issuing an operator's manual for accessible service as a companion to their standard operator's manual. In this manual all policies for safely boarding and debarking standees are explained.

### **2.2 Development of an Accessibility Plan**

The means to implement the transit systems policy is through an accessibility plan. No transit system can have a successful standee program without a general accessibility plan. The equipment, training, outreach, and attitude needed for a successful standee program will only be present in a system whose management has made a commitment to improve overall accessibility. Most transit systems begin improving their accessibility and complying with ADA by establishing a long-term plan for increasing accessible service. Usually, these plans involve the gradual phasing-in of equipment, operator and maintenance training programs, and routes and runs. In most cases, the purchase, installation, maintenance, and operation of lifts and other accessibility equipment will be a primary focus of an accessibility plan; standees on lifts will be a secondary concern. However, standees should be addressed in the sections of the plan devoted to operator and mechanic training, as well as those devoted to

sections of the plan devoted to operator and mechanic training, as well as those devoted to lift purchase and operation.

### **3. THE ROLE OF OPERATIONS IN A STANDEE-ON-LIFT PROGRAM**

Operators, dispatchers, and their supervisors are the members of a transit system who deal most frequently with standees. At each of the systems reviewed, the operations department played a critical role in developing procedures and policies for standees-on-lifts. Seattle Metro, WMATA, and Portland Tri-Met integrated standee-on-lift services into their existing accessibility programs: Their operations departments treated the emerging programs not as a revolutionary new idea, but as an extension of what had already been accomplished in accessibility services. Operations personnel evaluated existing lift equipment, bus routes, and schedules to determine the best way to adapt bus services to standees. Whenever possible, existing policies and procedures were expanded to include standees-on-lifts.

In developing their standee-on-lift programs, Seattle Metro, WMATA, and Portland Tri-Met expanded operators' instructions for boarding and debarking patrons in wheelchairs to include standees. Procedures for lift malfunctions and lift trouble-shooting also were expanded to include standees on lifts. A summary of these systems' operator instructions is presented in Sections 3.1 through 3.3. (Operator procedures required by the ADA are included where appropriate.) Section 3.4 discusses how to handle patrons who refuse to vacate designated seating, and Section 3.5 addresses those activities that are *not* required of operators serving standees.

#### **3.1 Boarding and Deboarding**

Suggested operator instructions for standees who are boarding or debarking include the following:

- Allow all other patrons to get on or off the vehicle before cycling the lift for a standee.
- Inquire if the standee has ridden a lift before. If he or she has not, explain briefly what to do to get on and off the lift.



- Caution all other patrons to remain clear of the lift while it is in operation.
- Verbally or physically guide the standee to the proper position on the lift. Lower the wheelchair loading-edge barrier if necessary, pointing out the "painted feet" on the lift that show where the standee should locate himself or herself (see Figure 3-1).
- Remind the standee to hold the handrail(s) and to keep his or her head low enough so that it will not strike the vehicle door frame (Figure 3-1).
- Cycle lift to "up" position; if necessary, assist the standee off of the lift and into the bus corridor.
- If all seats on the bus are occupied, assist the standee in securing a seat designated for senior citizens and individuals with disabilities.
- If necessary, assist the standee to his or her seat.
- Cycle the lift to "stowed" position.
- Inquire as to the destination of the standee.

The following are some of the problems that have occurred while boarding and debarking standees. Transit systems designing their standee-on-lift programs may wish to incorporate the suggestions for solving them in their operator instructions.

- **Bumped heads.** Tall or poorly positioned standees may bump their heads on the bus doorway when the lift is elevated to its full height. Seattle Metro has solved this problem by placing special padding in the doorways of its vehicles. WMATA places signs above the vehicle doorway reading "Low Doorway -- Watch Your Head."



**FIGURE 3-1. "PAINTED FEET" AND HANDRAILS ON LIFT AT SEATTLE METRO**



- **Scraped knuckles.** The ADA requires that handrails be "placed to provide a minimum 1 1/2 inches knuckle clearance from the nearest adjacent surface" (38.23(b)(13)). Portland Tri-Met encourages its operators to observe carefully the position of each standee on the lift and to warn the standee if his or her knuckles are close to the doorway.
- **Dizziness/motion sickness.** Some standees may be subject to spells of dizziness or motion sickness while riding the lift. However, none of the systems reviewed has ever experienced a standee falling off of a lift. In situations where a standee seems unsteady, an operator may suggest that a companion accompany him or her on the lift.
- **Protruding objects.** Lifts in poor repair may have protruding objects that could injure standees. The ADA requires that the lift platform surface be "free of any protrusions over 1/4 inch high" (38.23(b)(6)). Seattle Metro and Portland Tri-Met require their operators to observe the condition of the lift before a standee boards. They recommend that operators give oral warnings to standees should there be any protruding object on the lift that cannot be repaired immediately.

## 3.2 Lift Malfunctions

The transit systems reviewed for this report have two different procedures for handling lift malfunctions involving standees:

- Seattle Metro and Portland Tri-Met use emergency ramps, carried to the scene of the malfunction by supervisors, coupled with lifts that can be deployed manually to deboard stranded passengers. They rely on road supervisors who cover their jurisdictions in vans and who are (usually) never more than 15 minutes away from the location of any bus. The road supervisors carry



special "black boxes" that can override defective bus lift controls and safely deploy the lift.

- WMATA, NYCTA, and NJ TRANSIT require their operators to hold the vehicle and wait for maintenance crews to repair the malfunctioning lift. Most of these systems' buses have a junction box that displays an electronic schematic of the lift; when the lift malfunctions, the junction box indicates the location of the malfunction, allowing expedient road repairs. If the lift cannot be repaired on site, a supervisor with a lift-equipped vehicle is dispatched to transport any individual who needs a lift to his or her destination.

49 CFR 37: Section 37.163 of the ADA regulations mandates that transit systems establish a policy requiring operators to report any lift failures immediately. It also requires that

"When a lift is discovered to be inoperative, the entity shall take the vehicle out of service before the beginning of the vehicle's next service day and ensure that the lift is repaired before the vehicle returns to service."

In the event of a lift failure before boarding, the transit systems reviewed suggest the following operator instructions:

- Inform lift passengers that the lift is malfunctioning and that they may not board the vehicle.
- Call the dispatcher to report the malfunction and receive instructions regarding changing vehicles (required by the ADA).
- Convey these instructions to the passengers (especially if the vehicle is to be delayed) and give transfer information if possible.

Suggested operator instructions in the event of a malfunction during boarding or deboarding of standees are:

- Inform all passengers of the malfunction (especially the passengers with disabilities stranded by the malfunctioning lift).
- Contact the dispatcher to report the malfunction and receive instructions regarding changing vehicles (required by the ADA).
- Convey these instructions to passengers and give transfer information if possible.
- Keep stranded passengers calm and wait with the vehicle until a maintenance crew or road supervisor arrives.

### **3.3 Troubleshooting Lifts**

Seattle Metro, WMATA, and Portland Tri-Met all have sections in their operator's manuals devoted to lift troubleshooting. These systems feel that their operators are familiar enough with the lifts to make preliminary investigations into malfunctions; should there be a small or recurring mechanical problem, an operator can trouble-shoot the lift and proceed to get it working properly. (Note: Should an operator successfully trouble-shoot a lift, he or she still is required by the ADA to report the malfunction to the transit system.)

### **3.4 Dealing with the Public**

Occasionally, operators will need to ask patrons to vacate seats designated for standees. Most of the systems reviewed already had policies for dealing with difficult customers prior to establishing their standee-on-lift programs; they have expanded these policies to include the types of confrontations that may arise as the result of services to standees. Suggested operator instructions for dealing with difficult passengers are as follows:

- Avoid making demands and issue only polite, neutral requests for seat evacuation.

- In the event of a refusal, inform the individual(s) that the vehicle will not move until the standee is seated.
- The last resort is forced removal of the individual(s) by the operator's supervisor or the transit police.

None of the transit systems expects its operators to remove difficult passengers by themselves or to put themselves in physical jeopardy.

### **3.5 What Is Not Required of Operators**

The following list of what is *not* required of operators serving standees is representative of operator instructions at Seattle Metro, Portland Tri-Met, WMATA, and NJ TRANSIT:

- Operators are not expected to repair lifts or to remove stranded passengers from vehicles or lifts (except in extreme emergency situations).
- Operators are not expected to leave the vehicle area to pick up or drop off a standee (i.e., door-to-door service).
- Operators do not have to transport a standee who refuses to hold the handrail(s) or who stands on the lift in an unsafe manner.





## **4. THE ROLE OF THE ACCESSIBILITY SERVICES OFFICE**

An Accessibility Services Office (ASO) can be an important factor in establishing a successful standee-on-lift program. Operating under limited financial resources, the systems selected for this report have found that a single office devoted to accessibility is a cost-effective way to manage the many new ADA requirements and standards, especially those concerning standees. Also called "Customer Assistance," "Elderly and Handicapped Services," or "Customer Relations," an ASO typically is responsible for accessibility planning, customer complaints, outreach to the individuals with a disability, and promoting the needs of the patrons with disabilities to transit management. Often, this office is headed by a person with a disability.

The following services for standees are among those provided by the ASO at the transit systems reviewed:

- Coordinating the accessibility efforts of the different operations divisions: training, customer relations, safety, and management. Issues important for standees are handled by the ASO and communicated to the rest of the transit system.
- Working with transit unions to encourage bus personnel to observe transit policies for standees and other patrons with disabilities. At some systems, the ASO schedules events (such as dinners or game activities) designed to improve relations between bus personnel and individuals with disabilities.
- Maintaining a Customer Service Line. The ASO usually sponsors a telephone/telecommunications device for the deaf (TDD) so that patrons with disabilities can call with compliments or complaints.

- Working with transit planners to ensure that, as more lift-equipped buses are phased-in, the routes that accommodate standees are clearly marked and the system's policies and procedures for serving standees are followed.
- Meeting regularly with patrons with disabilities to determine which bus lines are in most demand by standees and how these lines can be made more accessible.
- Coordinating outreach programs that provide the opportunity for standees to "try out" lifts in a safe, nonthreatening environment.
- Ensuring that the transit system meets the ADA requirement to have all accessible vehicles clearly and visibly marked with the symbol for accessible service.
- Keeping records on accessibility service, including standee trips per day, lift malfunctions, standee injuries, and standee complaints.

As an ASO gains strong commitment and support from transit management, the system will become more motivated to purchase equipment that is reliable and easy to operate; to plan new routes with active participation from patrons with disabilities; and to respond to feedback from advisory groups and patrons with disabilities.

## **5. HUMAN RESOURCES: TRAINING AND EVALUATION**

Transit systems have few tools with which to ensure the quality of the service they provide to standees. Operator and mechanic training and evaluation are ways in which systems can influence directly the performance of those serving standees and other patrons with disabilities. The training and evaluation approaches discussed below are employed at Seattle Metro, Portland Tri-Met, WMATA, and NJ TRANSIT.

### **5.1 Operator Training**

There is little doubt that training for operators who serve standees improves the overall accessibility of a transit system. Seattle Metro, Portland Tri-Met, WMATA, and NJ TRANSIT all provide some form of training aimed at giving bus personnel a clearer understanding of and sensitivity to the diverse needs of people with disabilities. (Seattle Metro and Portland Tri-Met also train the operators of the private carriers they subsidize.) These systems' operator training programs typically include some type of practical exercise, role playing, and hands-on experience with mobility-aid devices.

#### **5.1.1 New Operator Training**

The most important time to train an operator in boarding and debarking standees is during his or her initial training. During these few days or weeks of training, a new operator learns the priorities and standards of the transit system concerning standees. Seattle Metro, Portland Tri-Met, WMATA, and NJ TRANSIT all focus their attention on the attitudes of veteran operators during new operator training; both Seattle Metro and WMATA feel that if veteran operators are able to demonstrate the importance of lift operation and procedures, new operators will be more likely to follow transit policy for standees. The following are elements of the new operator training programs in place at the four systems:

- Training time devoted to lift operation and standees ranges from 2 to 8 hours. Most of this time is spent providing hands-on experience with lift equipment.



- Most of the systems address standee recognition and the mediation of disputes over seating designated for standees and other patrons with disabilities.
- Role-playing is used to increase new operators' awareness of standees' needs. The systems recommend that new operators "role-play" as both standees and as patrons in wheelchairs, and that they practice boarding and deboarding. Seattle Metro has new operators "play" obnoxious patrons who do not want to give up their seats to a standee while others "handle" these patrons.

### 5.1.2 Refresher Training and Seminars

Refresher training and seminars are the second most important types of operator training; both can increase substantially the knowledge of veteran operators in a limited amount of time. Most refresher training involves only a training video or a 2-hour lecture. Seminars may be slightly more time consuming if transit management extends the opportunity for hands-on experience.

Seattle Metro, WMATA, Portland Tri-Met, and NJ TRANSIT typically offer refresher training for operators every 2 or 3 years. Seattle Metro has developed a set of training videos to "refresh" operators about the system's accessibility policies and procedures, standee recognition, and expected levels of service. One of these videos, *Easy Ridin'*, has received nationwide recognition as a valuable training tool for accessibility services. WMATA, Portland Tri-Met, and Seattle Metro offer seminars to demonstrate new equipment, to introduce new transit policies, or to discuss ongoing customer-relations issues. Portland Tri-Met promotes seminars as an ideal format for sensitivity training.

### 5.1.3 Meetings

Weekly or monthly meetings among operators to discuss accessibility, safety, scheduling, and customer relations can be as important as formal training. Many informal policies for standees are discussed and decided at monthly operator meetings at Portland Tri-Met and

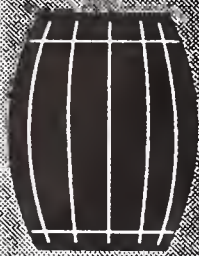


WMATA. Operator meetings at Portland Tri-Met have been helpful in resolving shared problems concerning standees, including the appropriate handling of an obstinate standee or a dangerous intersection for standee deboarding.

#### 5.1.4 Written Material

Seattle Metro, Portland Tri-Met, WMATA, and NJ TRANSIT all identified written material as another important medium for training operators on standee issues. The following types of written material were highlighted:

- Pamphlets, in-house newsletters, trade journals, and catalogs are cost-effective ways for transit systems to keep operators abreast of the latest developments in standee accessibility. The *Pickle Barrel*, Portland Tri-Met's operator publication, runs a monthly column called "Uplifting News" that discusses issues concerning standees and riders in wheelchairs (see Figure 5-1). Seattle Metro publishes a weekly *Operations Bulletin* that addresses many accessibility issues, including standees on lifts (see Figure 5-2).
- Seattle Metro and Portland Tri-Met use memos from their ASO and top management to communicate standee information to operators.
- Each of the systems has a centrally located bulletin board on which the latest standee procedures and guidelines are posted.
- Posters, signs, and slogans placed strategically on vehicles and in base stations remind operators at Portland Tri-Met and WMATA of standee policies and procedures.
- Seattle Metro and NJ TRANSIT both distribute laminated cards listing operator lift instructions.



# PICKLE BARREL

A NEWSLETTER FOR OPERATORS

Issue No. 45

Sept./Oct. 1991

## Dear Operator,

Congratulations to those 502 operators who had perfect attendance for the summer. Additional congratulations for helping to make both June and July our highest operator attendance at 93.6%.

Tri-Met has grown tremendously over the past 20 years. Our service has expanded, and our system has diversified with the beginning of light rail. But, through all the

changes, one thing has remained the same -- the need for professional bus operators. Everyday you demonstrate these professional qualities by handling all kinds of situations -- many of which others never know about. It is difficult to measure and thank you for the day-to-day challenges you face. When we can identify those measurable qualities, it is important to recognize them.

The "Tri-Met's Best" sweatshirt and certificate given to you this summer is a symbol of the Transportation Department's appreciation for your excellent attendance. Thank you for all your efforts. They are very much appreciated.

Sincerely,

Clyde A. Earl



## Uplifting News

by Patty Nielsen  
*Accessibility planner*

### Lifts Aren't Just For Wheelchairs!

I have received several calls lately from customers with disabilities who report that operators aren't letting them use the lift because they aren't in wheelchairs.

So, PLEASE -- when a customer (standee) who cannot climb up or down the bus steps, or who uses a cane, crutches or walker, asks to use the lift -- don't ask why or deny them service. Think about it -- if they didn't need the lift, why would they

ask! Also, when a customer with a disability asks you to hold their cane or crutch(es) so they can board the bus, please provide this assistance. Thank you.

### Who Was the Driver?

This following incident was told to me by a member of the Committee on Accessible Transportation, and if it rings a bell, call me at 238-4904, I'd like to know who you are.

Sometime back, Tom, who is blind, and his wife boarded a Line 15 bus. At one of the stops on the way to the Civic Stadium, a customer using a scooter boarded the bus. The

customer appeared to be having some difficulty getting into the securement area. Tom's wife commented to him that "it was sort of like parallel parking." Anyway, once the driver had the mobility device secured, they overheard the customer apologize to the driver for taking up so much of his time and holding up the bus for the other passengers. The driver was heard to say, "Sir, you owe me absolutely no apology. Recently I had the experience of being in a wheelchair at Disability Awareness Day at work, so I now have some understanding of how hard it is to maneuver in one of those things."



*Operator Wade Hull displays the stained glass window won by Operator Jay Volheye. The window was made and donated by Preston Black (Operator Randy Black's father). A hearty thanks to all of the employees who helped out during this difficult time for the Black and Hull families.*

## Bikes on transit update

At the present time, no firm date is established to begin Tri-Met's Bikes on Transit pilot project. However, it is clear that bikes will not be placed in the wheelchair securement areas on buses.

Tri-Met has received a sample bike rack from Phoenix, Az. We're evaluating its design as well as considering designs of other racks from other transit properties and various manufacturers. Then, Tri-Met may purchase a small number of racks for use in a pilot project.

FIGURE 5-1. EXCERPT FROM PORTLAND TRI-MET'S *PICKLE BARREL*



# OPERATIONS BUL The Book

M/S 68

#1981

August 14, 1991

## CUSTOMER REQUESTS

Please remember that some customers may have disabilities that are not visible to you. For example, some people are unable to grasp stanchions or use courtesy seats with foot platforms. For this reason, you may receive requests such as waiting in the zone until the customer is seated. Such requests should be accommodated whenever possible. For further information on assisting customers, see Section 5.27 in The Book.

## MPA OR SPD IDENTIFICATION

When you receive help from police due to problems on your coach, please note on your Security Incident Report whether the assistance is rendered by regular city/county police or by MPA's. If you are not certain of their status, ask the officers who are assisting you.

## H.O.V LANES

With the advent of a two-person H.O.V. lane test on I-5 north of Northgate, new safety hazards emerge. The H.O.V. lane has increased volumes and more cars are attempting to change lanes as they make their way into and out of the lanes. Be aware that these new H.O.V. users do make sudden, unexpected lane changes, both left and right. Extra caution during the early phase of the two-person test is required.

## CALLING ALL TUNNEL OPERATORS!

We need your help in reducing damage to the tires on the Breda buses. Sidewalls that come in contact with the curbing on the Westlake turn incur extensive damage and are expensive to repair and/or replace. You can help prevent wear and tear on the tires by observing the following:

### Obey the Posted Speed

The limit is 15mph or less in both directions through the Westlake turn. Controlling your speed will make it easier to counter-steer if you find the rear wheels coming too close to the curb.

### Check Your Mirrors During the Turn

When operating northbound and making the turn into Westlake Station, position your coach to the far left in the tunnel segment. Check your right mirror as you make the turn. You should be able to see the yellow buttons on the right. If they disappear under the right wheels, move to the left.

When operating southbound from Westlake Station to University Street Station, keep the bus to the right in the tunnel segment. Maintain a few inches clearance on the right side, so your wheelchair lift doesn't scrape the curbing. Check your left side mirror while making the turn to make sure you can see the yellow button.

Thank you for your cooperation.

## NEW COMFORT STATION

A new facility serves routes 5, 28, 29 and 355. It is Highlands Texaco at 14056 Greenwood Avenue North. Operating hours are 6:00am - 10:00pm, Monday through Thursday; 6:00am - 11:00pm on Friday; 7:00am - 11:00pm on Saturday; and 8:00am - 9:00pm on Sunday. Please note this station as #46 in the September issue of The Book.

#1981 08/14/91

  
Gloria Overgaard  
Manager  
Operations



FIGURE 5-2. EXAMPLE OF SEATTLE METRO'S *OPERATIONS BULLETIN*

### **5.1.5 Other Training Ideas**

Seattle Metro, WMATA, and Portland Tri-Met hold bus "roadeos" and barbecues focusing on lift operation and other aspects of accessibility training. These systems also hold "Accessibility Fairs" at which operators can socialize with some of the patrons with disabilities they serve (see Figure 5-3).

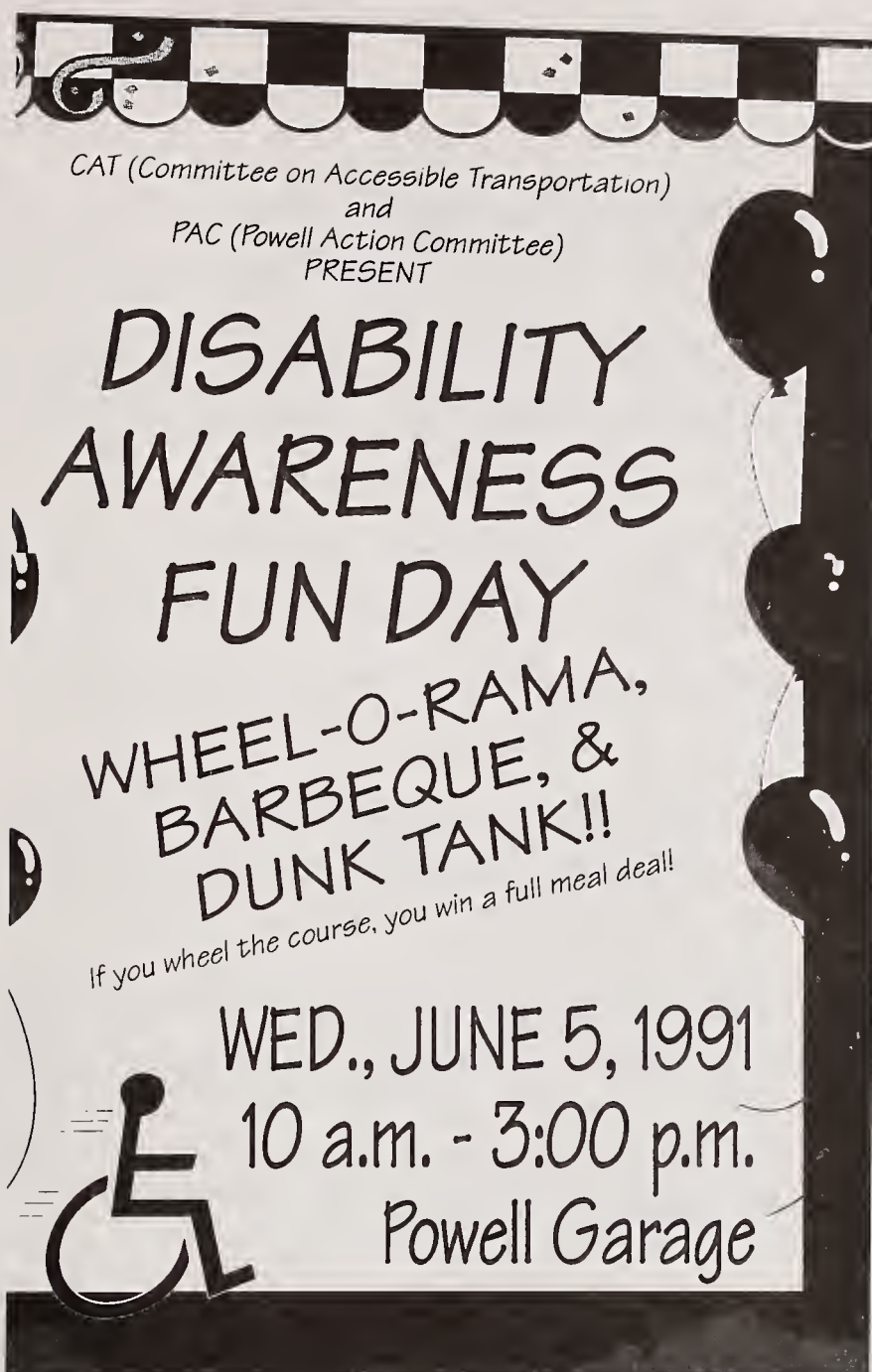
Seattle Metro and Portland Tri-Met use daily lift cycling to provide operators with hands-on lift experience.

## **5.2 Mechanic Training**

Like operators, mechanics play a vital role in the success of any accessibility program: If lifts are to be readily accessible by standees, they must be in good working condition. Seattle Metro, WMATA, Portland Tri-Met, and NJ TRANSIT all believe that maintenance training sessions, as well as the actual working environment in the garage, should emphasize the importance of well-maintained lifts:

- One Seattle Metro mechanic observed that if new mechanics were taught high standards of excellence for repairing and maintaining lifts and other equipment, a negative attitude toward the needs of the patrons with disabilities might never develop.
- Seattle Metro and Portland Tri-Met recommend that more than one mechanic in any given garage be familiar with lift repair and, if possible, that all mechanics have a basic understanding of lift operation.
- NJ TRANSIT requires bus garages to complete weekly lift-usage reports indicating all successful and unsuccessful lift operations. System management reviews the reports and informs the garages of any patterns in lift malfunctions that should be corrected.





DUNK TANK SCHEDULE	
10:00 - 10:30 A.M. JOHN FREE	12:30 - 1:00 P.M. TONY BRYANT
10:30 - 11:00 A.M. CHUCK RENNER	1:00 - 1:30 P.M. MERLE DALRYMPLE
11:00 - 11:30 A.M. BOB DAVIE	1:30 - 2:00 P.M. DEBI LAFOLLETTE
11:30 - 12:00 NOON TOM CHAMBEKS	2:00 - 2:30 P.M. WALLY FEIST
12:00 - 12:30 P.M. CLYDE EARL	2:30 - 3:00 P.M. KEITH BOOS

FIGURE 5-3. POSTER FOR ACCESSIBILITY FAIR AT PORTLAND TRI-MET

- In addition to operators' lift cycling, Seattle Metro's mechanics and maintenance crews cycle the lifts to gain experience with their operation.

### **5.3 Evaluation and Disciplinary Action**

Several different means of evaluating operators' and mechanics' attention to standee-on-lift policies are employed at Seattle Metro, WMATA, and Portland Tri-Met:

- Road supervisors at all three systems ride along bus routes and evaluate operators' performance; occasionally an operator will be required to deploy the lift and board or deboard a standee or a rider in a wheelchair.
- Customer assistance notifies the systems' operations departments whenever an operator receives a significant number of complaints from standees.
- Incident and accident reports, safety records, and absentee and tardiness records provide data used in evaluating operator and mechanic performance.

#### **5.3.1 Enforcement of Operating Instructions for Standees**

Seattle Metro, WMATA, and Portland Tri-Met enforce their policies for standees on lifts by listing one or both of the following infractions in the "discipline" sections of their operator manuals:

- "willful failure to follow procedures or directives of the system"
- "failure to stop for customers"

Disciplinary actions for operators who commit one of these infractions include oral reminders; forced leave of absence; suspension; and, if necessary, discharge.

### **5.3.2 Operator Merits**

In cooperation with local organizations for persons with disabilities, Seattle Metro and NJ TRANSIT sponsor Bus Operator Awards Programs. Recipients of these awards are those bus operators receiving the most commendations for outstanding service to passengers with disabilities. In addition, most of the systems surveyed consider a high level of service to passengers with disabilities an important criteria for their coveted Bus Operator of the Year Awards.





## **6. COMMUNITY OUTREACH**

When questioned about the difficulty of increasing standee ridership, all of the systems reviewed agreed that outreach to persons with disabilities is an important, though often ignored, aspect of a system's relationship to the community it serves.

### **6.1 Encouraging Standee Ridership**

Seattle Metro, Portland Tri-Met, and WMATA have discovered highly effective ways to encourage standee ridership:

- Personalized letters mailed to standees, members of organizations that may include standees, and the senior citizens' community explaining standee service and providing a telephone number for more information.
- Door-to-door visits in senior citizens' communities and at homes for individuals with disabilities by transit system officials explaining services for standees.
- Mobility fairs, at which a lift-equipped bus (parked at a mall or senior citizens' center) allows standees to gain positive experiences riding the lifts (see Figure 6-1).
- Speaking engagements at meetings of organizations for persons with disabilities, advertisements for standee services on radio and billboards, and publicity received in local newspapers for outstanding service to patrons with disabilities.



TRI-MET  
*presents*

# MOBILITY FAIRS

Have you ever wanted to ride Tri-Met's lift-equipped buses but weren't sure how or if you could?

Now is your chance to learn and practice for free.

COMING TO A TRANSIT CENTER NEAR YOU:

WHEN	WHERE	TIME
Monday, July 22	Gateway Transit Center	10 a.m. - 3 p.m.
Tuesday, July 23	Transit Mall - 5th & Oak	10 a.m. - 3 p.m.
Wednesday, July 24	Beaverton Transit Center	10 a.m. - 3 p.m.
Thursday, July 25	Oregon City Transit Center	10 a.m. - 3 p.m.
Friday, July 26	Barbur Transit Center Tigard Transit Center	9 a.m. - noon 1 p.m. - 3 p.m.
Monday, July 29	Milwaukie Transit Center Clackamas Town Center TC	9 a.m. - noon 1 p.m. - 3 p.m.
Tuesday, July 30	Hillsboro Transit Center Cedar Hills Transit Center	9 a.m. - noon 1 p.m. - 3 p.m.
Wednesday, July 31	Rockwood Transit Center Gresham City Hall	9 a.m. - noon 1 p.m. - 3 p.m.
Thursday, August 1	Hollywood Transit Center	10 a.m. - 3 p.m.
Friday, August 2	Coliseum Transit Center	10 a.m. - 3 p.m.



So don't be shy, give it a try! Let Tri-Met give you  
a lift and see how easy it can be!

For further information, contact Tri-Met's Senior & Disabled Information  
at 238-4852 (TDD 238-5811 for those who are hearing impaired  
or deaf) weekdays from 8:30 a.m. - 4:30 p.m. or  
Patricia Nielsen at 238-4904.



**FIGURE 6-1. POSTER FOR MOBILITY FAIR AT PORTLAND TRI-MET**



## **6.2 Standee Training**

WMATA, Seattle Metro, and Portland Tri-Met all maintain that standee training is an important aspect of increasing standee ridership. The following are among those approaches employed by these systems to train standees:

- At all three systems, operators carry pamphlets on "How to Use the Lift" and distribute them to first-time standees.
- Operators at Portland Tri-Met carry the business card of their ASO so that special training sessions may be arranged for standees having difficulty.
- NJ TRANSIT uses volunteers to take individuals with disabilities on "training trips" to familiarize them with the lifts.
- Mobility fairs held by each of these systems provide another opportunity to train standees in lift usage.

## **6.3 Disability Awareness**

Outreach programs at Seattle Metro, WMATA, Portland Tri-Met, and NJ TRANSIT also involve patrons without disabilities. These systems take the following actions to encourage patrons without disabilities to support standee services:

- Placing signs on buses announcing new accessibility services for standees and other patrons with disabilities.
- Running newspaper or radio advertisements that encourage patrons that are not disabled to be more sensitive to the needs of passengers with disabilities.

- Encouraging operators to explain the lift process to both the standee on the lift and the patrons without disabilities watching.

## **APPENDIX**

### **ADA REQUIREMENTS FOR STANDEES-ON-LIFTS**

Standees must be allowed to board and deboard transit vehicles on lifts that meet Access Board standards. Access Board standards for buses, vans, and specialized vehicles are located in the Code of Federal Regulations (49 CFR Parts 37 and 38) published in the Federal Register on September 6, 1991.

The following are ADA requirements for accessible lifts and for standee service on buses, vans, and specialized vehicles:

#### **Lift and Securement Use 37.165**

(g) The entity shall permit individuals with disabilities who do not use wheelchairs, including standees, to use a vehicle's lift or ramp to enter the vehicle.

Appendix D to Part 37 of the ADA regulations states:

#### **Standees 37.165**

People using canes or walkers and other standees with disabilities who do not use wheelchairs but have difficulty using steps (e.g., an elderly person who can walk on a plane without use of a mobility aid but cannot raise his or her legs sufficiently to climb bus steps) must also be permitted to use the lift, on request.

#### **Training**

##### **Training Requirements 37.173**

Each public or private entity which operates a fixed route or demand responsive system shall ensure that personnel are trained to proficiency, as appropriate to their duties, so that they operate vehicles and equipment safely and properly assist and treat individuals with disabilities who use the service in a respectful and courteous way, with appropriate attention to the difference among individuals with disabilities.



## **Lift Requirements**

### **Handrails 38.23(b)(13)**

Platforms on lifts shall be equipped with handrails on two sides, which move in tandem with the lift, and which shall be graspable and provide support to standees throughout the entire lift operation. Handrails shall have a usable component at least 8 inches long with the lowest portion a minimum 30 inches above the platform and the highest portion a maximum 38 inches above the platform. The handrails shall be capable of withstanding a force of 100 pounds concentrated at any point on the handrail without permanent deformation of the rail or its supporting structure. The handrails shall have a cross-sectional diameter between 1 1/4 inches and 1 1/2 inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than 1/8 inch. Handrails shall be placed to provide a minimum 1 1/2 inches knuckle clearance from the nearest adjacent surface. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the vehicle.

### **Lift Platform Surface 38.23(b)(6)**

The platform surface shall be free of any protrusions over 1/4 inch high and shall be slip-resistant. The platform shall have a minimum clear width of 28 1/2 inches at the platform, a minimum clear width of 30 inches measured from 2 inches above the platform's surface to 30 inches above the platform, and a minimum clear length of 48 inches measured from 2 inches above the surface of the platform to 30 inches above the surface of the platform.

### **Lift Platform Movement 38.23(b)(10)**

No part of the platform shall move at a rate exceeding 6 inches/second during lowering and lifting an occupant, and shall not exceed 12 inches/second during deploying or stowing. This requirement does not apply to the deployment or stowage cycles of lifts that are manually deployed or stowed. The maximum horizontal and vertical acceleration when occupied shall be 0.3g.

### **Overhead Clearance between Door and Raised Platform 38.25(c)**

For vehicles in excess of 22 feet in length, the overhead clearance between the top of the door opening and the raised lift platform, or highest point of a ramp shall be a minimum of 68 inches. For vehicles 22 feet in length or less, the overhead clearance between the top of the door opening and the raised lift platform, or highest point of a ramp, shall be a minimum of 56 inches.

### **Lift Platform Gaps 38.23(b)(7)**

Any openings between the platform surface and the raised barriers shall not exceed 5/8 inch in width. When the platform is at vehicle floor height with the inner barrier (if applicable) down or retracted, gaps between the forward lift platform edge and the vehicle floor shall not exceed 1/2 inch horizontally and 5/8 inch vertically. Platforms on semi-automatic lifts may have a hand hold not exceeding 1 1/2 inches by 4 1/2 inches located between the edge barriers.

### **Lift Platform Barriers 38.23(b)(5)**

The lift platform shall be equipped with barriers to prevent any of the wheels of a wheelchair or mobility aid from rolling off the platform during its operation. A moveable barrier or inherent design feature shall prevent a wheelchair or mobility aid from rolling off the edge closest to the vehicle until the platform is in its fully raised position. Each side of the lift platform which extends beyond the vehicle in its raised position shall have a barrier minimum 1-1/2 inches high. Such barriers shall not interfere with maneuvering into or out of the aisle. The loading-edge barrier (outer barrier) which functions as a loading ramp when the lift is at ground level, shall be sufficient when raised or closed, or a supplementary system shall be provided, to prevent a power wheelchair or mobility aid from riding over or defeating it. The outer barrier of the lift shall automatically raise or close, or a supplementary system shall automatically engage, and remain raised, closed, or engaged at all times the platform is more than 3 inches above the roadway or sidewalk and the platform is occupied. Alternately, a barrier or system may be raised, lowered, opened, closed, engaged, or disengaged by the lift operator, provided an interlock or inherent design feature prevents the lift from rising unless the barrier is raised or closed or the supplementary system is engaged.

### **Platform Lighting 38.31**

(a) Any stepwell or doorway immediately adjacent to the driver shall have, when the door is open, at least 2 foot-candles of illumination measured on the step tread or lift platform.

(b) Other stepwells and doorways, including doorways in which lifts or ramps are installed, shall have, at all times, at least 2 foot-candles of illumination measured on the step tread, or lift or ramp, when deployed at the vehicle floor level.

(c) The vehicle doorways, including doorways in which lifts or ramps are installed, shall have outside light(s) which, when the door is open, provide at least 1 foot-candle of illumination on the street surface for a distance of 3 feet perpendicular to all points on the bottom step tread outer edge. Such light(s) shall be located below window level and shielded to protect the eyes of entering and exiting passengers.



## **Lift Maintenance and Malfunction**

### **Lift Maintenance 37.161**

- (a) Public and private entities providing transportation services shall maintain in operative condition those features of facilities and vehicles that are required to make the vehicles and facilities readily accessible to and usable by individuals with disabilities. These features include, but are not limited to, lifts and other means of access to vehicles, securement devices, elevators, signage and systems to facilitate communications with persons with impaired vision or hearing.
- (b) Accessibility features shall be repaired promptly if they are damaged or out of order. When an accessibility feature is out of order, the entity shall take reasonable steps to accommodate individuals with disabilities who would otherwise use the feature.
- (c) This section does not prohibit isolated or temporary interruptions in service or access due to maintenance or repairs.

### **Keeping Vehicle Lifts in Operative Condition 37.163**

- (a) This section applies only to public entities with respect to lifts in non-rail vehicles.
- (b) The entity shall establish a system of regular and frequent maintenance checks of lifts sufficient to determine if they are operative.
- (c) The entity shall ensure that vehicle operators report to the entity, by the most immediate means available, any failure of a lift to operate in service.
- (d) Except as provided in paragraph (e) of this section, when a lift is discovered to be inoperative, the entity shall take the vehicle out of service before the beginning of the vehicle's next service day and ensure that the lift is repaired before the vehicle returns to service.
- (e) If there is no spare vehicle available to take the place of a vehicle with an inoperable lift, such that taking the vehicle out of service will reduce the transportation service the entity is able to provide, the public entity may keep the vehicle in service with an inoperable lift for no more than five days (if the entity serves an area of 50,000 or less population) or three days (if the entity serves an area of over 50,000 population) from the day on which the lift is discovered to be inoperative.
- (f) In any case in which a vehicle is operating on a fixed route with an inoperative lift, and the headway to the next accessible vehicle on the route exceeds 30 minutes,



the entity shall promptly provide alternative transportation to individuals with disabilities who are unable to use the vehicle because its lift does not work.

#### **Emergency Operation of Lift 38.23(b)(3)**

The lift shall incorporate an emergency method of deploying, lowering to ground level with a lift occupant, and raising and stowing the empty lift if the power to the lift fails. No emergency method, manual or otherwise, shall be capable of being operated in a manner that could be hazardous to the lift occupant or to the operator when operated according to manufacturer's instructions, and shall not permit the platform to be stowed or folded when occupied, unless the lift is a rotary lift and is intended to be stowed while occupied.

#### **Power or Equipment Failure 38.23(b)(4)**

Platforms stowed in a vertical position, and deployed platforms when occupied, shall have provisions to prevent their deploying, falling, or folding any faster than 12 inches/second or their dropping of an occupant in the event of a single failure of any load carrying component.

### **Vehicle Interior**

#### **Priority Seating Signs 38.27(a)**

Each vehicle shall contain sign(s) which indicate that seats in the front of the vehicle are priority seats for persons with disabilities, and that other passengers should make such seats available to those who wish to use them. At least one set of forward-facing seats shall be so designated.

#### **Interior Circulation, Handrails and Stanchions 38.29**

(a) Interior handrails and stanchions shall permit sufficient turning and maneuvering space for wheelchairs and other mobility aids to reach a securement location from the lift or ramp.

(b) Handrails and stanchions shall be provided in the entrance to the vehicle in a configuration which allows persons with disabilities to grasp such assists from outside the vehicle while starting to board, and to continue using such assists throughout the boarding and fare collection process. Handrails shall have a cross-sectional diameter between 1 1/4 inches and 1 1/2 inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than 1/8 inch. Handrails shall be placed to provide a minimum 1 1/2 inches knuckle clearance from the nearest adjacent surface. Where on-board fare collection devices are used on vehicles in excess of 22 feet in length, a horizontal passenger assist shall be located across the front of the vehicle and shall prevent passengers from sustaining injuries on the fare collection

device or windshield in the event of a sudden deceleration. Without restricting the vestibule space, the assist shall provide support for a boarding passenger from the front door through the boarding procedure. Passengers shall be able to lean against the assist for security while paying fares.

(c) For vehicles in excess of 22 feet in length, overhead handrails(s) shall be provided which shall be continuous except for a gap at the rear doorway.

(d) Handrails and stanchions shall be sufficient to permit safe boarding, on-board circulation, seating and standing assistance, and alighting by persons with disabilities.

(e) For vehicles in excess of 22 feet in length with front-door lifts or ramps, vertical stanchions immediately behind the driver shall either terminate at the lower edge of the aisle-facing seats, if applicable, or be "dog-legged" so that the floor attachment does not impede or interfere with wheelchair footrests. If the driver seat platform must be passed by a wheelchair or mobility aid user entering the vehicle, the platform, to the maximum extent practicable, shall not extend into the aisle or vestibule beyond the wheel housing.

(f) For vehicles in excess of 22 feet in length, the minimum interior height along the path from the lift to the securement location shall be 68 inches. For vehicles of 22 feet in length or less, the minimum interior height from lift to securement location shall be 56 inches.

### **Fare Box 38.33**

Where provided, the farebox shall be located as far forward as practicable and shall not obstruct traffic in the vestibule, especially wheelchairs or mobility aids.

### **Doors, steps and thresholds 38.25**

(a) *Slip resistance.* All aisles, steps, floor areas where people walk and floors in securement locations shall have slip-resistant surfaces.

(b) *Contrast.* All step edges, thresholds and the boarding edge of ramps or lift platforms shall have a band of color(s) running the full width of the step or edge which contrasts from the step tread and riser, or lift or ramp surface, either light-on-dark or dark-on-light.

(c) *Door height.* For vehicles in excess of 22 feet in length, the overhead clearance between the top of the door opening and the raised lift platform, or highest point of a ramp, shall be a minimum of 68 inches. For vehicles of 22 feet in length or less, the overhead clearance between the top of the door opening and the raised lift platform, or highest point of the ramp, shall be a minimum of 56 inches.





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